

Pereute (Pieridae); many Acraeinae, Ithomiinae, Heliconiinae, *Cethosia* (Nymphalidae); many Zygaenidae, Ctenuchidae, and Arctiidae (Heterocera).

I cannot recall any butterfly which displays thanatosis for which there is not good evidence that it is also unpalatable. There are, however, unpalatable butterflies which have not developed strong integuments, especially in the Pieridae, but this seems to be mainly in genera where only some species are unpalatable, and which appear less specialised than those mentioned above (*Pieris brassicae* Linne being a good example).

On the other hand, among the butterflies, I know of only two species which are apparently palatable and yet have tougher integuments than even the Danainae. One is the virtually indestructible *Thaduka multicaudata* de Niceville (Lycaenidae: Theclinae). Even the strongest pressure on the thorax with a pair of nails, accompanied by audible cracking of the thorax, fails to do damage. In the evening it will fly out seemingly undamaged from its paper. *Bibasis sena* Moore (Hesperiidae: Coeliadinae) is almost as tough. They are, however, very much exceptions to the rule, and their toughness is not shared with their closest generic relatives in southern India. There may be more examples among the Heterocera (e.g. the Cossidae).

Conclusion

Thanatosis, in various guises, is common throughout the animal kingdom. However, at least among butterflies it normally seems to have co-evolved with unpalatability *and* the development of a particularly tough integument. Since all three elements have co-evolved independently in a number of different butterfly families their combination appears to have particularly strong survival value.

Reference

Ackery, P. & Vane-Wright, R.I., 1984. *Milkweed butterflies*. British Museum (Natural History). London.

Sedina buettneri Her., Blair's Wainscot (Lep.: Noctuidae) in Kent.

A single male *S. buettneri* was caught in the Rothamsted Insect Survey (R.I.S.) light trap at Lydd, Kent (Site No. 462, OS grid ref. TR 044 203) on 2.x.1987. *S. buettneri* was known to occur at Freshwater Marsh, Isle of Wight, from 1945 to 1952 (Skinner, 1984). Its history at Freshwater, and accounts of its biology, are given by Blair (1946; 1950; 1951), Tams (1946), Robinson (1950) and Heath & Emmet (1983).

There were no further records of this species in Britain until an individual was caught at mercury vapour light by Tweedie (1967) at Playden, near Rye, E. Sussex on 14.x.1966. There were few primary migrant Lepidoptera recorded during October 1966 (B. Skinner, pers. comm.). Following this record, B. Skinner and K. Satler made an extensive search of Romney and

Romney and Winchelsea Marshes but failed to find the larval foodplant, *Carex acutiformis* (B. Skinner, pers. comm.). A further specimen was caught at light by J.T. Radford at Walberton, W. Sussex on 30.ix.1985 (Bretherton and Chalmers-Hunt, 1985). This capture was accompanied by many immigrant species and it was assumed that the *S. buettneri* was of continental origin.

As no migratory species were caught in the R.I.S. trap at Lydd, or at nearby m.v. light traps at Dungeness, on the night the present record was made, it was felt possible that *S. buettneri* was resident in the area. Consequently, research into possible breeding sites was undertaken. J. Badmin (pers. comm.) states that no *Carex acutiformis* was found by members of the Kent Field Club in an extensive survey in 1985 of the pits around Dungeness Point and Skinner and Satler (loc. cit.) had already failed to find this plant in the Romney Marsh area. However, Forster and Wohlfahrt (1963-71) state that the larva of *S. buettneri* occasionally feeds on *Glyceria*. Further, Heath and Emmet (1983) state that larvae accept *G. maxima* in captivity. Consequently, it seemed possible that *S. buettneri*, if resident, could be utilising an alternative foodplant. Several other *Carex* spp. occur in the area (J. Badmin, loc. cit.) and *G. maxima* and *G. fluitans* are not uncommon in the Romney district (Skinner, pers. comm.).

Contradictory opinions were given regarding the origins of the extinct Freshwater colony. Heath and Emmet (loc. cit.) suggest that it was probably a recent colonist rather than a long-established resident. However, Blair (1950) believed the species may have occurred at Freshwater prior to the extension of the Marsh when, before 1914, the area was primarily grazing land intersected by drainage ditches. He suggested that small populations could have been maintained in the network of ditches. As Romney Marsh is primarily agricultural land intersected by such ditches, it was assumed that this might be the case in Kent.

In 1988 and 1989, Ian Woiwod ran m.v. light traps on the edge of a large gravel pit near Lydd and also at a nearby drainage channel. These appeared to be the two most likely sites in the immediate vicinity of the Lydd trap. However, the weather was unsuitable with heavy rain and low temperatures. Very few moths were recorded and *S. buettneri* was absent from the catch.

Another expedition was mounted in October 1990. Three m.v. lights over sheets were operated at the same gravel pit, sugar was spread on posts and trees near the pond margins and searches were made by torchlight. However, the sky was clear and the temperature dropped quickly after dusk. Again, very few moths were caught and no *S. buettneri* were seen. No further attempts to find this species have been made.

Whether the Lydd record represents an immigrant or a resident is still uncertain. The fact that no primary migrants were recorded at the time of capture suggests the latter. Intensive trapping specifically to catch

immigrant Lepidoptera takes place on Dungeness shingle every year during October. *S. buettneri* has never been caught by such means so it is unlikely to be resident in that area.

Provided *S. buettneri* is able to utilise an alternative larval foodplant, it is possible this species could maintain itself in the system of drainage ditches around Romney Marsh. There is much suitable ground on Welland Marsh between the records at Lydd and Playdon. Blair (1951) states that it is a feeble flyer “ . . . not given to wandering far from its breeding ground ” and Heath and Emmet (1983) observe that, although it is attracted to lights placed deep inside a colony, mercury vapour lights outside the marsh edges are less effective. Consequently, sites and methods used to search for this apparently sedentary species must be carefully chosen.

Thanks are extended to A. Heath for operating the R.I.S. light trap at Lydd and for arranging permission to run m.v. lights on private land. Also I. Woiwod, M. Townsend, I. Wynne and D. Riley for operating m.v. lights in search of this species and to B. Skinner and J. Badmin for their helpful advice.

References: Blair, K.G. (1946). Notes from Freshwater, Isle of Wight, including a Wainscot (Lep.: Agrotidae) new to Britain. *Ent. mon. Mag.* **82**: 140-141. Blair, K.G. (1950). Notes on the life history of *Sedina buettneri* Hering (Lep.: Caradrinidae). *Ent. mon. Mag.* **86**: 47-49. Blair, K.G. (1951). *Sedina buettneri* Hering at Freshwater, Isle of Wight. *Entomologist's Gaz.* **2**: 249-252. Bretherton, R.F. & Chalmers-Hunt, J.M. (1985). The immigration of Lepidoptera to the British Isles in 1985. *Ent. Rec. J. Var.* **98**: 223-230. Forster, W. & Wohlfahrt, T.A. (1963-71). *Die Schmetterlinge Mitteleuropas*. Stuttgart. Heath, J. & Emmet, A.M. (1983). *The moths and butterflies of Great Britain and Ireland*, Vol. 10. Harley, Colchester. Robinson, H.S. (1950). *Sedina buettneri* Hering. *Entomologist's Gaz.* **1**: 150. Skinner, B. (1984). *Colour identification guide to the moths of the British Isles*. Viking, Harmondsworth. Tams, W.H.T. (1946). The discovery of *Sedina buettneri* Hering (Lep.: Agrotidae) in the Isle of Wight. *Entomologist* **79**: 215-218. Tweedie, M.W.F. (1967). Exhibits — annual exhibition. *Proc. Trans. S. Lond. Nat. Hist. Soc.* 1967: 112.—ADRIAN M. RILEY, AFRC Farmland Ecology Group, Dept. Entomology and Nematology, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Hazards of butterfly collecting — the art of playing dead, India 1952.

Elsewhere in this issue appears a short note on the art of playing dead, *thanatosis*, a subject which has interested me since I first came into contact with it when living with my parents in New Delhi, India. This was where my interest in butterflies began, at the age of seven, and one of my mentors in this respect was the Common Tiger (*Danaus chrysippus*), a very common butterfly in those parts, and one of the largest and most beautiful of the fauna.

By the time I was eight I had worked out reasonably fully, and independently, the mimicry relationship between *Danaus chrysippus* and its superb mimic, the Diadem (*Hypolimnas misippus*). I still remember how much a let-down it was when I found out that this splendid discovery had